

CLAIMS

1. An air mixing damper apparatus (43) characterized in that there is provided between a plate door type air mixing damper (43A) for opening and closing an air introducing face (42a) of a heater core (42), and a rotation type lever (48) of an actuator (47) for driving the air mixing damper (43A), a mechanism for adjusting rotational speed of the air mixing damper (43A) to linearly change the temperature of discharged air with respect to the operation of the lever of the actuator (47).

2. An air mixing damper apparatus (43) characterized in that there is provided between a plate door type air mixing damper (43A) for opening and closing an air introducing face (42a) of a heater core (42), and a rotation type lever (48) of an actuator (47) for driving the air mixing damper (43A), a mechanism for adjusting rotational speed at an initial opening stage (X) and a final opening stage (Z) of the air mixing damper 43A, to a speed lower than at an intermediate opening stage (Y).

3. An air mixing damper apparatus (43) according to either one of claim 1 and claim 2, characterized in that said mechanism for adjusting rotational speed comprises; a cam (60) provided in the air mixing damper (43A) and a pin (61)

provided on the lever (48) of the actuator (47) for engaging with said cam (60).

4. An air mixing damper apparatus (43) according to claim 3,
5 characterized in that said cam (60) incorporates a guide path for guiding the pin (61) of the lever (48) of the actuator (47), and the guide path has a first guide path (K1) for effecting control at an initial opening stage (X) of the air mixing damper (43A), a second guide path (K2) for effecting control at an intermediate opening stage (Y) of the air mixing damper (43A), and a third guide path (K3) for effecting control at a final opening stage (Z) of the air mixing damper (43A).

5. An air mixing damper apparatus according to claim 3,
characterized in that said cam (60) has an opening portion (62) with a guide path for guiding the pin (61) of the lever (48) of the actuator (47) provided around the periphery thereof, and the guide path has a first guide path (K1) for
20 effecting control at an initial opening stage (X) of the air mixing damper (43A), a second guide path (K2) for effecting control at an intermediate opening stage (Y) of the air mixing damper (43A), and a third guide path (K3) for effecting control at a final opening stage (Z) of the air mixing damper
25 (43A).

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6. An air mixing damper apparatus (43) according to either one of claim 4 and claim 5, characterized in that said first guide path (K1) is formed in a direction gradually separating outward with respect to a turning path of the pin (61) of the lever (48) of the actuator (47), in a fully closed position of the air mixing damper (43A), and said third guide path (K3) is formed in a direction gradually separating outward with respect to the turning path of the pin (61) of the lever (48) of the actuator (47), in a fully open position of the air mixing damper (43A).

7. An air mixing damper apparatus (43) according to either one of claim 5 and claim 6, characterized in that there is provided urging means (64) for urging the pin (61) of the lever (48) of the actuator (47) into the first guide path (K1) at least at an initial opening stage (X) of the air mixing damper (43A), and urging the pin (61) of the lever (48) of the actuator (47) into the third guide path (K3) at least at a final opening stage (Z) of the air mixing damper (43A).

8. An air mixing damper apparatus (43) according to any one of claim 2 through claim 7, characterized in that the range of the opening of the air mixing damper (43A) is from fully closed to around 15 degrees in said initial opening stage (X) shows, while the range of the opening of the air mixing damper (43A) is from 20 degrees from fully open to fully open in the final opening stage (Z).

a heater unit (40) having a heater core (42) provided inside a heater unit case for heating the introduced air passing therein, an air mixing damper apparatus (43) for adjusting the flow quantity of said introduced air which passes through said heater core (42), and a plurality of air outlets (44, 45, 46) opening from said heater unit case (41) and respectively provided with dampers (44a, 45a, 46a), characterized in that said air mixing damper apparatus (43) is an air mixing damper apparatus (43) according to any one of claim 1 through claim 8.

10. An air mixing damper apparatus (43) provided with a plate door type air mixing damper (43A) for opening and closing an air introducing face (42a) of a heater core (42), and

11. An air mixing damper apparatus (43) according to claim 10, characterized in that an operating amount of said air mixing damper (43A) with respect to an operating amount of said operating means (L) at operation initiation and operation completion is small compared to at an intermediate operation stage.

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